Rule 1406
Emission Reduction Credits for Paving Unpaved Roads

(A) General

(1) Purpose

(a) The purpose of this Rule is to ensure that PM_{10} Emission Reduction Credits issued for the voluntary paving of unpaved roads are Enforceable, Permanent, Quantifiable, Real, and Surplus.

(2) Applicability

(a) This Rule shall apply to applicants for, applications for, and sources using, Emission Reduction Credits resulting from emission reductions due to the voluntary paving of unpaved roads within the Mojave Desert Air Quality Management District, when such reductions have occurred after the adoption of this Rule.

(3) Conflicts with Other District Rules

(a) If there is a conflict between the provisions of this Rule and those of District Rule 1402, the provisions of this rule shall apply.

(B) Definitions

For the purpose of this Rule, the definitions contained in District Rule 1401 shall apply unless the term is otherwise defined herein.

(1) "Degraded" - A Roadway Segment with a pavement condition score less than 30% according to the pavement condition analysis criteria listed in the American Association of State Highway and Transportation Officials (AASHTO), as determined by a state or local government with maintenance jurisdiction over the Roadway Segment.

(2) "Enforceable" - Independently verifiable, program violations are defined, those liable can be identified, and the Administrator and the APCO can apply penalties and secure appropriate corrective action where applicable. *[See also Rule1401(K)]*

(3) "Permanent" - Continuing or enduring for thirty (30) years, or the duration of the major PM_{10} source offset with the Emission Reduction Credit, whichever is greater. *[See also Rule 1401(Q)]*

(4) "Quantifiable" - Able to be reliably and replicably measured by adhering to the quantification protocol set forth in Section D(1). *[See also Rule 1401(U)]*

(5) "Real" - Able to be demonstrated to have actually occurred. *[See also Rule 1401(W)]*

(6) "Roadway Segment" - A section of roadway between two definitive points, including but not limited to intersections, road ends or other demarcation points, which define a change in the roadway structure. The length of such segments shall be expressed in miles and tenths of miles.

(7) "Surplus" -The amount of emission reductions that are not:

(a) Required by federal, state or local law, or the Clean Air Act; or,

(b) Included, required or relied upon in the existing federally approved State Implementation Plan (SIP); or,

(c) Included in an agricultural best management plan; or,

(d) Used by any source to meet any other regulatory requirement including but not limited to, at the time offsets are used, Reasonably Available Control Technology (RACT); or,

(e) Required by any other legal settlement or consent decree; or,

(f) Included in any SIP-related requirements, including but not limited to: Reasonable Further Progress (RFP), milestones, attainment demonstration, conformity regulations, operating permit regulations, operating permits issued under District permit regulations, any requirement contained in any new source review permits such as Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) determinations, limitations on operations of raw materials, emission reductions used for offset or netting purposes, and assumptions used in an attainment demonstration; or,

(g) Subject to be included in any of the following as contained in the SIP-approved Plan or in the latest locally-adopted rules or PM Plan: District Rule 403.1, District Rule 403.2, or contingency measures. *[See also Rule 1401(DD)]*

(C) Requirements

(1) Applications

(a) All unpaved road paving ERC applications shall be submitted in writing and contain all the information required by the provisions of District Rule 1402 (B)(1)(b).

(b) All unpaved road paving ERC applications shall contain all of the following additional information:

(i) The name, address and telephone number of a responsible official for the applicant (the responsible official will be the addressee of all official correspondence regarding the application and ERCs);

(ii) The name and telephone number of a contact person for inquiries regarding the application and ERCs, if different than the responsible official;

(iii) A statement from the applicant that the unpaved road(s) will be paved according to state or local government paving standards;

(iv) A list of unpaved roads proposed for paving, including: location; length(s); Roadway Segment identification(s); a map, diagram or aerial photograph with the specific segment(s) indicated; and photos or video of non-gravel Roadway Segments;

(v) Calculations that quantify vehicle miles traveled (VMT) for each Roadway Segment, including all supporting data from traffic counts performed pursuant to Section (C)(2);

(vi) Calculations that quantify emissions from each Roadway Segment before and after paving, including all results and supporting data from any source-specific testing performed pursuant to Section (E); and,

(vii) A letter or agreement from the appropriate state or local government stating that the Roadway Segment(s):

a. Has been inspected;

b. Has been described as being either gravel- or non-gravel-surfaced;

c. Will be adopted into the state or local transportation network, if not already part of the network; and,

d. Will be maintained.

(c) No unpaved road paving ERC application will be accepted until the applicable fees as specified in District Rule 313 are paid.

(d) Unpaved road paving ERC applications shall be submitted within six months after the completion of the paving.

(e) Unpaved road paving ERC applications may be withdrawn by the applicant in the same manner and pursuant to the same conditions as set forth in District Rule 1402(B)(1)(e).

(2) Determination of VMT

(a) VMT information required by subsection (C)(1)(v) shall be calculated using a separate traffic count for each Roadway Segment, as follows:

(i) Each traffic count shall measure vehicular traffic over a 48-hour period, which may consist of two non-consecutive 24-hour periods. For averaging purposes, vehicular traffic shall be considered zero for each hour not monitored continuously during any given 24-hour period.

(ii) The two distinct 24-hour traffic counts shall be conducted on non-holiday weekdays.

(iii) The daily traffic and annual traffic calculations for each Roadway Segment shall be based on hourly averages of all traffic counts for that particular Roadway Segment.

(iv) The daily traffic for each Roadway Segment shall be calculated by multiplying the average hourly traffic for that Roadway Segment by the Roadway Segment's length in miles.

(v) The average daily traffic count shall be multiplied by the daily and monthly seasonal adjustment factors for paved roads to calculate the annual vehicle miles traveled. The seasonal adjustment factors shall be obtained from the most recent Highway Performance Monitoring System data provided by the California Department of Transportation.

(3) Determination of Emissions

(a) Emissions from unpaved and paved roads required by subsection (C)(1)(v) shall be calculated using the equations in section (F), and as follows:

(i) The equations in Section F shall be used to determine the quantity of PM_{10} emissions (in terms of pounds per vehicle mile traveled) emitted from each Roadway Segment before and after paving;

(ii) The default values provided in Section F for silt content shall be used to calculate PM_{10} emissions, unless the applicant provides source specific values obtained in accordance with Section E;

(iii) The annual quantity of PM_{10} emissions emitted from each Roadway Segment shall be calculated by multiplying the PM_{10} emission factor by the annual vehicle miles traveled determined as specified in (C)(2); and,

(iv) The PM_{10} emission reduction associated with paving an unpaved Roadway Segment shall be calculated as the difference, in tons per year, between the emissions from the road in the unpaved condition and the emissions from the road in the paved condition. Vehicle exhaust, brake wear and tire wear cancel and are ignored for purposes of this calculation.

(4) Procedure for Issuance of ERCs.

(a) Determination of Completeness

(i) The APCO shall determine if the unpaved road paving ERC application is complete using the procedure set forth in District Rule 1402(B)(2).

(b) Calculation of Unpaved Road Paving ERCs

(i) Upon the application being determined complete, the APCO shall calculate the amount of unpaved road paving ERC using the

information provided in the application and the calculations set forth in Section (F).

(c) Proposed Unpaved Road Paving ERCs

(i) The APCO shall determine whether to issue or deny the unpaved road paving ERC in compliance with the standards set forth in subsection (C)(5) using the procedure set forth in District Rule 1402(B)(4).

(d) Public Notice and Comment

(i) After the APCO has determined to issue the unpaved road paving ERC the APCO shall submit the proposed unpaved road paving ERCs for public notice and comment in accordance with the procedures set forth in District Rule 1402(B)(5).

(e) Issuance of Unpaved Road Paving ERCs

(i) Upon the expiration of the public comment period; after review of comments accepted, if any; and upon payment of the appropriate analysis fee, if any, the APCO shall issue an approval letter which shall specify the amount of ERCs that will be issued for paving each Roadway Segment upon completion of the paving actions.

(ii) Upon completion of paving of any Roadway Segment specified in an ERC application, the applicant shall submit a summary report to the APCO that identifies the Roadway Segment(s) paved, provides the date paving was completed, and includes a copy of the local or state government's report evaluating the condition of each Roadway Segment. In response, the APCO shall issue a certificate for PM_{10} ERCs as specified in the application approval letter and otherwise in accordance with Rule 1402.

(5) Standards for Granting Unpaved Road Paving ERCs

(a) The APCO shall only approve a road paving ERC application that demonstrates that the emission reductions will be Real, Quantifiable, Permanent, Enforceable and Surplus.

(6) Maintenance of Unpaved Road Paving ERCs

(a) After paving a given Roadway Segment, the applicant shall, not less frequently than once every two years, obtain a copy of the local or state government's report evaluating the condition of the paved Roadway Segment, and determine if the report indicates that the Roadway Segment is Degraded. The applicant shall submit a copy of the report, and a statement identifying any and all Degraded Roadway Segments, to the APCO within 60 days of receipt of the report. Failure to submit the

periodic reports required by this section shall result in the Roadway Segment being classified as Degraded.

(b) Within 12 months of the submittal to the APCO of a statement identifying a Degraded Roadway Segment, the applicant shall provide replacement emission reductions by:

(i) Repaving the Degraded Roadway Segment and submitting a summary report as detailed in Section (C)(6)(a); or,
(ii) By surrendering PM_{10} offsets equivalent to the total emission reductions approved by the APCO for the Degraded Roadway Segment.

(c) Upon road paving ERC sale, transfer or use by a major PM_{10} source as offsets, all requirements of Sections (6)(a) and (b) above transfer to the new owner or major PM_{10} source.

(D) Recordkeeping

(1) The owner or operator shall maintain records required by this Rule for at least thirty years after the date of each entry, and required records shall be provided to District, state or federal personnel upon request.

(E) Test Methods

(1) Roadway Segment surface material silt content shall be calculated as a percent by weight and be determined by sweeping and vacuuming at least 5 pounds of material from representative strips of known area of the surface and establishing the 75 micron or silt fraction through the use of a 200 mesh screen (USEPA AP-42 "Compilation of Air Pollutant Emission Factors" Appendices C.1 for sampling and C.2 for analysis). If an applicant performs any silt content analysis, or has such analysis performed on its behalf, the applicant must use the silt content determined from that analysis to calculate PM_{10} emissions.

(F) Emissions Calculation Equations

(1) Equation 1 shall be used to estimate the quantity of PM_{10} emissions from unpaved roads, using the applicable default value for s unless the applicant provides Roadway Segment-specific values for *s* using the method specified in Section (E):

Equation 1: $E_u = (s)(0.10662)$

where:

E_u = the unpaved road PM_{10} emission factor with units pounds per vehicle mile traveled.
s = the surface material silt content
Default value *s* for non-gravel road = 11.0
Default value *s* for gravel road = 6.2

(2) Equation 2 is the USEPA AP-42 §13.2.2 equation that Equation 1 is based on, with the default values specified:

Equation 2: $$E_u = \frac{(k)\left(\frac{s}{12}\right)^a \left(\frac{S}{30}\right)^d}{\left(\frac{M}{0.5}\right)^c}$$

where:

E_u = the unpaved road PM_{10} emission factor with units pounds per vehicle mile traveled.
k = empirical constant (1.8 for PM_{10})
s = the surface material silt content
Default value s for non-gravel road = 11.0
Default value s for gravel road = 6.2
a = empirical constant (1 for PM_{10})
S = the mean vehicle speed with units miles per hour (default value 20 mph for all unpaved roads)
d = empirical constant (0.5 for PM_{10})
M = surface material moisture content with units percent (default value 1.0 for all unpaved roads)
c = empirical constant (0.2 for PM_{10})

(3) Equation 3 shall be used to estimate the quantity of PM_{10} emissions from re-suspension of loose material on a road surface due to vehicle travel on a dry paved Roadway Segment after paving:

Equation 3: $$E_p = 0.00546$$

where:

E_p = the paved road PM_{10} emission factor with units pounds per vehicle mile traveled.

(4) Equation 4 is the USEPA AP-42 §13.2.1 equation that Equation 3 is based on, with the default values specified:

Equation 4: $$E_p = k\left(\frac{sL}{2}\right)^{0.65}\left(\frac{W}{3}\right)^{1.5}$$

where:

E_p = the paved road PM_{10} emission factor with units pounds per vehicle mile traveled.
k = empirical constant (0.016 for PM_{10})
sL = the road surface silt loading with units grams per square meter (default value 0.23 for all paved roads)

W = average weight of vehicles traveling the road with units tons (default value 3.74 for all unpaved roads)